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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
RYMAN, DANIEL J	

ART UNIT	PAPER NUMBER
2665	

DATE MAILED: 12/21/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/799,868	SUN ET AL.	
	Examiner	Art Unit	
	Daniel J. Ryman	2665	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 March 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-13 and 15-41* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2,4-7,10-13,15-26,29-33,35-38,40, and 41* is/are rejected.

7)☒ Claim(s) *3,8,9,27,28,34 and 39* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *12 March 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *3/12/2004*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Specification

1. The abstract of the disclosure is objected to because it exceeds 150 words in length. Correction is required. See MPEP § 608.01(b).

2. The abstract of the disclosure is objected to because in line 17 "the either the" should be "either the." Correction is required.

3. The disclosure is objected to because of the following informalities: on page 4, line 31 "frame.." should be "frame.". On page 5, line 2 "the either the" should be "either the." On page 6, line 1 "channel.." should be "channel.". On page 6, lines 4 and 5 "receiver 102" should be "receiver 104."

Appropriate correction is required.

Claim Objections

4. Claim 9 is objected to because of the following informalities: in line 5 "probability" should be "likelihood". Appropriate correction is required.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 1, 2, 4-7, 11-13, 15, 16, 18, 19, 21, 23-26, 31-33, 36-38, and 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ketseoglou (USPN 6,138,260) in view of Cannon (USPN 5,384,565).

7. Regarding claim 1, Ketseoglou discloses a method for transmitting data frames in a communications system comprising a transmitter and a receiver (col. 4, lines 31-63), comprising: transmitting a data frame from said transmitter to said receiver (col. 6, lines 36-43), when said transmitter receives a request from the receiver for retransmission of said data frame, retransmitting said data frame to the receiver (col. 4, lines 52-58); receiving said retransmitted data frame at said receiver (col. 6, lines 45-52); identifying a first data frame stored in the buffer, the data frames stored in the buffer comprising data frames that were received with errors, which potentially corresponds to the received retransmitted data frame (col. 6, lines 45-52 and col. 7, line 64-col. 8, line 23); and combining the received retransmitted data frame with the first data frame to form a combined data frame (col. 6, lines 45-52 and col. 7, line 64-col. 8, line 23). Ketseoglou does not expressly disclose retransmitting said data frame to the receiver without transmitting a signaling message identifying said retransmitted data frame or comparing said received retransmitted data frame to data frames stored in a buffer. Examiner notes that Ketseoglou does not disclose how the retransmitted signal is identified even though Ketseoglou discloses that the identification occurs (col. 6, lines 45-52 and col. 7, line 64-col. 8, line 23). Cannon teaches, in a wireless communication system, identifying duplicate messages (retransmitted messages) in a receiver, where the duplicate messages are transmitted without transmitting a signaling message identifying the duplicate message (col. 1, line 60-col. 2, line 2 and col. 2, lines 34-41), by comparing the received duplicate message to messages stored in a memory (col. 2, lines 34-col. 3, line 53) in order to identify duplicate messages without requiring system capacity for sending a signaling message identifying the duplicate message (col. 1, line 60-col. 2, line 2). It would have been obvious to one of ordinary skill in the art at the time of the

invention to retransmit the data frame to the receiver without transmitting a signaling message identifying the retransmitted data frame and to compare the received retransmitted data frame to data frames stored in a buffer in order to identify retransmitted messages without requiring system capacity for sending a signaling message identifying the retransmitted message.

8. Regarding claim 2, referring to claim 1, Ketseoglou in view of Cannon implicitly discloses that the comparing comprises: determining whether a likelihood of a match between said received retransmitted data frame and one of said data frames in said buffer exceeds a first predetermined threshold (Cannon: col. 8, lines 9-29), and wherein the identifying comprises: identifying a data frame in which the likelihood of a match exceeds the first predetermined threshold as the first data frame (Cannon: col. 8, lines 9-29).

9. Regarding claim 4, referring to claim 1, Ketseoglou in view of Cannon discloses that the comparing comprises comparing a likelihood of a match between said received retransmitted data frame and the data frames stored in said buffer to a first threshold; and when said likelihood is below said first threshold for each of the data frames stored in the buffer, storing said received retransmitted data frame in said buffer (Ketseoglou: col. 6, lines 45-52 and col. 7, line 64-col. 8, line 23 and Cannon: col. 8, lines 9-29).

10. Regarding claim 5, referring to claim 4, Ketseoglou in view of Cannon discloses that when said likelihood is below said first threshold for each of the data frames stored in the buffer, sending another retransmission request to said transmitter to request said transmitter to again retransmit said data frame (Ketseoglou: col. 6, lines 45-52 and col. 7, line 64-col. 8, line 23 and Cannon: col. 8, lines 9-29).

11. Regarding claim 6, referring to claim 4, Ketseoglou in view of Cannon discloses that when said likelihood is at or above said first threshold for one of the data frames stored in the buffer identifying the one data frame as the first data frame (Cannon: col. 8, lines 9-29).

12. Regarding claim 7, referring to claim 6, Ketseoglou in view of Cannon discloses verifying a criteria of said combined data frame (Ketseoglou: col. 6, lines 45-52 and col. 7, line 64-col. 8, line 23). Ketseoglou in view of Cannon implicitly discloses when said criteria of said combined data frame is acceptable, deleting said first data frame from said buffer (Ketseoglou: col. 6, lines 45-52 and col. 7, line 64-col. 8, line 23) where this would be performed in order to ensure that the buffer does not overflow.

13. Regarding claims 11 and 13, Ketseoglou discloses a method for controlling a receiver and a system comprising a receiver, the method comprising the steps of and the system comprising means for: controlling said receiver to analyze a criteria of a received data frame and to transmit a request to said a transmitter for retransmission of said data frame when said criteria is unacceptable (col. 6, lines 45-52); controlling said receiver to receive said retransmitted data frame (col. 6, lines 45-52); and controlling said receiver to combine said received retransmitted data game with an identified potentially matching data frame of the other data frames stored in the buffer, the other data frames comprising data frames that contained errors (col. 6, lines 45-52 and col. 7, line 64-col. 8, line 23). Ketseoglou does not expressly disclose controlling said receiver to receive said retransmitted data frame without receiving a signaling message identifying the retransmitted data frame; controlling said receiver to compare said received retransmitted data frame to other data frames stored in a buffer to locate a potentially matching data frame and to determine a likelihood of a match between said received retransmitted data

frame and said potentially matching data frame; and controlling said receiver to combine said received retransmitted data game with said potentially matching data frame when said likelihood exceeds at least one predetermined threshold. Examiner notes that Ketseoglou does not disclose how the retransmitted signal is identified even though Ketseoglou discloses that the identification occurs (col. 6, lines 45-52 and col. 7, line 64-col. 8, line 23). Cannon teaches, in a wireless communication system, identifying duplicate messages (retransmitted messages) in a receiver, where the duplicate messages are transmitted without transmitting a signaling message identifying the duplicate message (col. 1, line 60-col. 2, line 2 and col. 2, lines 34-41), by comparing the received duplicate message to messages stored in a memory (col. 2, lines 34-col. 3, line 53) in order to identify duplicate messages without requiring system capacity for sending a signaling message identifying the duplicate message (col. 1, line 60-col. 2, line 2). Cannon also implicitly teaches that the messages are determined to be duplicates (retransmissions) when a likelihood of a match between the received potential duplicate message and one of the messages in the memory exceeds a first predetermined threshold (col. 8, lines 9-29). Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to control said receiver to receive said retransmitted data frame without receiving a signaling message identifying the retransmitted data frame; to control said receiver to compare said received retransmitted data frame to other data frames stored in a buffer to locate a potentially matching data frame and to determine a likelihood of a match between said received retransmitted data frame and said potentially matching data frame; and to control said receiver to combine said received retransmitted data game with said potentially matching data frame when said likelihood exceeds at least one predetermined threshold in order to identify retransmitted messages without

requiring system capacity for sending a signaling message identifying the retransmitted message. Ketseoglou in view of Cannon does not disclose that a computer readable medium of instructions controls the receiver; however, Examiner takes official notice that using a computer program to control a device is well known in the art since software is typically easier and less expensive to modify once it has been installed compared to hardware. Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to implement the method using software since software is easier to modify than hardware.

14. Regarding claims 12 and 15, referring to claims 11 and 13, Ketseoglou in view of Cannon discloses controlling said receiver to perform the following steps when said likelihood is below any of said at least one predetermined threshold: store in said buffer either said combined data frame, or said received retransmitted data frame and said matching data frame, depending on which of said at least one threshold said likelihood is below (Ketseoglou: col. 6, lines 45-52 and col. 7, line 64-col. 8, line 23 and Cannon: col. 8, lines 9-29); and send another retransmission request to said transmitter to request said transmitter to again retransmit said data frame (Ketseoglou: col. 6, lines 45-52 and col. 7, line 64-col. 8, line 23).

15. Regarding claim 16, referring to claim 1, Ketseoglou in view of Cannon implicitly discloses decoding the combined data frame to produce a decoded combined data frame; verifying a criteria of the decoded combined data frame; and when said criteria of said decoded combined data frame is acceptable, deleting the first data frame from the buffer (Ketseoglou: col. 6, lines 45-52 and col. 7, line 64-col. 8, line 23) where the deletion step would be performed in order to ensure that the buffer does not overflow.

16. Regarding claims 18, 21 and 23, referring to claims 1, 11 and 13, Ketseoglou in view of Cannon discloses that the combining performed in accordance with the combining step comprises soft combining the retransmitted data frame and the potentially matching data frame (Ketseoglou: col. 6, lines 45-52 and col. 7, line 64-col. 8, line 23).

17. Regarding claim 19, referring to claim 1, Ketseoglou in view of Cannon discloses when the receiver determines that retransmission of the data frame is necessary, storing the data frame in the buffer (Ketseoglou: col. 6, lines 45-52 and col. 7, line 64-col. 8, line 23 and Cannon: col. 8, lines 9-29).

18. Regarding claims 24, 31, and 36, Ketseoglou discloses a method and a system, the method comprising the steps of and the system comprising means for: receiving a data frame (col. 6, lines 36-52); performing an error check on the data frame (col. 6, lines 36-52); storing the data frame in a buffer when the data frame does not pass the error check (col. 6, lines 36-52); transmitting a request for retransmission of the data frame (col. 6, lines 36-52); identifying a first data frame stored in the buffer that potentially corresponds to the retransmitted data frame, the data frames stored in the buffer comprising data frames that were received with errors and combined data frames that did not pass an error check (col. 6, lines 45-52 and col. 7, line 64-col. 8, line 23); and combining the retransmitted data frame with the first data frame to form a combined data frame (col. 6, lines 45-52 and col. 7, line 64-col. 8, line 23). Ketseoglou does not expressly disclose retransmitting said data frame to the receiver without transmitting a signaling message identifying said retransmitted data frame or comparing said received retransmitted data frame to data frames stored in a buffer. Examiner notes that Ketseoglou does not disclose how the retransmitted signal is identified even though Ketseoglou discloses that the identification

occurs (col. 6, lines 45-52 and col. 7, line 64-col. 8, line 23). Cannon teaches, in a wireless communication system, identifying duplicate messages (retransmitted messages) in a receiver, where the duplicate messages are transmitted without transmitting a signaling message identifying the duplicate message (col. 1, line 60-col. 2, line 2 and col. 2, lines 34-41), by comparing the received duplicate message to messages stored in a memory (col. 2, lines 34-col. 3, line 53) in order to identify duplicate messages without requiring system capacity for sending a signaling message identifying the duplicate message (col. 1, line 60-col. 2, line 2). It would have been obvious to one of ordinary skill in the art at the time of the invention to retransmit the data frame to the receiver without transmitting a signaling message identifying the retransmitted data frame and to compare the received retransmitted data frame to data frames stored in a buffer in order to identify retransmitted messages without requiring system capacity for sending a signaling message identifying the retransmitted message. Ketseoglou in view of Cannon does not disclose implementing the method using a computer readable medium of instructions; however, Examiner takes official notice that using a computer program to implement a method is well known in the art since software is typically easier and less expensive to modify once it has been installed compared to hardware. Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to implement the method using software since software is easier to modify than hardware.

19. Regarding claims 25, 32, and 37, referring to claims 24, 31, and 36, Ketseoglou in view of Cannon discloses that the comparing comprises: determining whether a likelihood of a match between the retransmitted data frame and one of the data frames stored in the buffer exceeds a first threshold (Cannon: col. 8, lines 9-29), and wherein the identifying comprises; identifying a

data frame in which the likelihood of the match exceeds the first threshold as the first data frame (Cannon: col. 8, lines 9-29).

20. Regarding claims 26, 33, and 38, referring to claims 25, 32, and 37, Ketseoglou in view of Cannon implicitly discloses decoding the combined data frame; performing an error check on the decoded combined data frame; and deleting the first data frame from the buffer when the decoded combined data frame passes the error check (Ketseoglou: col. 6, lines 45-52 and col. 7, line 64-col. 8, line 23) where the deletion step would be performed in order to ensure that the buffer does not overflow.

21. Regarding claim 41, referring to claim 36, Ketseoglou in view of Cannon does not expressly disclose that when comparing, the logic is configured to: identify data frames stored in the memory less than a predetermined time, and bypass the comparing for data frames stored in the memory for less than the predetermined time. Examiner takes official notice that it is well known in the art that a response to a request sent from a one node to a second node will be delayed by a round-trip delay due to the time it takes the messages to traverse the distance between the two nodes. Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to identify data frames stored in the memory less than a predetermined time (round trip time), and to bypass the comparing for data frames stored in the memory for less than the predetermined time (round trip time) since none of the messages stored for less than the predetermined time (round trip time) could correspond to the received message.

22. Claims 10, 29, 35, and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ketseoglou (USPN 6,138,260) in view of Cannon (USPN 5,384,565) as applied to claims 1, 24, 31, and 36 above, and further in view of Lee (USPN 5,408,475).

23. Regarding claim 10, 29, 35, and 40, referring to claim 1, Ketseoglou in view of Cannon does not expressly disclose that said comparing compares a Hamming distance between said received retransmitted data frame and said data frames stored in said buffer to locate said first data frame. Lee discloses, in a communication system, that it is known to use Hamming distances to compare two digital words with Hamming distances being simply the cumulative difference between two corresponding bits in a digital word (col. 3, lines 1 1-18). It would have been obvious to one of ordinary skill in the art of data communications to use Hamming distances in the compare step because Hamming distances are easy to calculate since they are only the cumulative difference between two corresponding bits in a digital word.

24. Claims 17, 20, and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ketseoglou (USPN 6,138,260) in view of Cannon (USPN 5,384,565) as applied to claims 1, 11, and 13 above, and further in view of Rezaiifar et at (USPN 6,011,796).

25. Regarding claims 17, 20, and 22, referring to claims 1, 11 and 13, Ketseoglou in view of Cannon does not expressly disclose controlling said receiver to perform the following operations before the comparing operation: determine whether the retransmitted data frame includes a retransmission indicator; and when the retransmitted data frame includes the retransmission indicator, modify the retransmitted data frame to eliminate the retransmission indicator. Ketseoglou in view of Cannon does disclose that the transmitted and retransmitted signals are compared to determine if the signals are identical (Ketseoglou: col. 4, lines 52-58 and Cannon: col. 8, lines 9-29). Rezaiifar discloses having a retransmission indicator in order to indicate to the receiver that the transmitted frame is a retransmission (col. 7, lines 57-63). Thus, it would have been obvious to one of ordinary skill in the art of data communications to have the retransmitted

frame include a retransmission indicator in order to indicate to the receiver that the received packet is a retransmission. It also would have been obvious to one of ordinary skill in the art of data communications to remove the retransmission indicator from the packet before the step of comparing and combining in order to ensure that the retransmitted signal is identical to the previously received signal when the comparison is performed.

26. Claim 30 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ketseoglou (USPN 6,138,260) in view of Cannon (USPN 5,384,565) as applied to claim 24 above, and further in view of Bahler et al. (USPN 5,414,755).

27. Regarding claim 30, referring to claim 24, Ketseoglou in view of Cannon does not expressly disclose that the comparing comprises: comparing a Euclidean distance between the retransmitted data frame and the data frames stored in the buffer. Bahler teaches, in a voice communication system (analogous to a cellular system), using a Euclidean distance to determine a similarity between frames (col. 8, line 63-col. 9, line 38). Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to the comparing comprise comparing a Euclidean distance between the retransmitted data frame and the data frames stored in the buffer since an Euclidean distance is a known method for comparing the similarity of two frames.

Allowable Subject Matter

28. Claims 3, 8, 9, 27, 28, 34, and 39 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The prior art does not disclose or fairly suggest

comparing the probability to a second threshold if the criteria of the combined frame is unacceptable.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel J. Ryman whose telephone number is (571)272-3152. The examiner can normally be reached on Mon.-Fri. 7:00-4:30 with every other Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Huy Vu can be reached on (571)272-3155. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Daniel J. Ryman
Examiner
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